



U.S. Department
of Transportation
**Federal Aviation
Administration**

Proposed

Advisory Circular

Subject: ELECTRICAL SYSTEM FIRE AND SMOKE PROTECTION	Date: Draft 5/2001	AC No: 25.869-1X
	Initiated By: ANM-100	Change:

1. PURPOSE.

a. This Advisory Circular (AC) describes an acceptable means for showing compliance with the requirements of §25.896(a), “Fire protection: systems,” of Title 14, Code of Federal Regulations (CFR) part 25. Part 25 contains the airworthiness standards applicable to transport category airplanes. The means of compliance described in this document provides guidance to supplement the engineering and operational judgment that must form the basis of any compliance findings relative to protection of electrical systems from fire and smoke.

2. APPLICABILITY.

a. The guidance provided in this document is directed to airplane manufacturers, modifiers, foreign regulatory authorities, and Federal Aviation Administration (FAA) transport airplane type certification engineers and their designees.

b. As of the issuance date, the guidance provided in this AC is harmonized with that of the European Joint Aviation Authorities (JAA). It provides a method of compliance that both the FAA and JAA have found acceptable.

c. Like all advisory circular material, this AC is not, in itself, mandatory, and does not constitute a regulation. It describes an acceptable means, but not the only means, for demonstrating compliance with the requirements for transport category airplanes. Terms such as “shall” and “must” are used only in the sense of ensuring applicability of this particular method of compliance when the acceptable method of compliance described in this document is used. While these guidelines are not mandatory, they are derived from extensive Federal Aviation Administration and industry experience in determining compliance with the relevant regulations.

d. This advisory circular does not change, create any additional, authorize changes in, or permit deviations from regulatory requirements.

3. RELATED SECTIONS OF TITLE 14, CODE OF FEDERAL REGULATIONS (CFR), PART 25.

- § 25.863 Flammable fluid fire protection
- § 25.869 Fire protection: systems

4. DEMONSTRATION OF COMPLIANCE. Applicants may show compliance with the requirements § 25.869, and those of § 25.863 applicable to electrical equipment, by demonstrating the following:

- a. Electrical components in regions immediately behind firewalls and in engine pod attachment structures should be made of such materials and installed at such a distance from the firewall that they will not suffer damage that could hazard the airplane if the surface of the firewall adjacent to the fire is heated to 1100° C (2012° F) for 15 minutes.
- b. Electrical equipment should be constructed and/or installed so that in the event of failure, no hazardous quantities of toxic or noxious products (for example, smoke) will be distributed in the crew or passenger compartments.
- c. Electrical equipment that may come into contact with flammable vapors should be designed and installed so as to minimize the risk of the vapors exploding under both normal and fault conditions. This can be satisfied by meeting the Explosion Proofness Standards of Radio Technical Commission for Aeronautics (RTCA) Document DO-160/EUROCAE ED-14.

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